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REMARKS

Claims 1-13 and 15-27 are pending in the application. Claims 1-13 and 15-27 stand rejected by the Examiner. Claim 14 is withdrawn from further consideration pursuant to 37 CFR 1.142(b). The drawings filed on March 30, 2004 have not been acknowledged by the Examiner. The Examiner's rejections and objections are addressed below in the same order of the pending Office Action.

CLAIM OBJECTIONS

Claim 17 stands objected to because the expression "the temperature data" had no antecedent basis. Appropriate correction has been made.

CLAIM REJECTIONS UNDER 35 USC § 102

Claims 1, 6, 8, 15, 20, 22 and 23 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Collette (US2003/0010491). Collette teaches an oil well pumping system that includes a small positive displacement pump below the fluid interface in a low volume oil well which pumps at a rate to maintain approximately constant fluid level in the well. The system includes at least a pair of sensors in a sensor array that is positioned above the pump and near the fluid interface to unambiguously determine liquid level. (Abstract).

With respect to claims 1 and 15, Collette does not teach or suggest a controller determining whether a fluid level sensor is surrounded by a liquid or a gas based on a differential in the measured parameter. That is, Collette does not determine a difference in two measured values and determine whether surrounding fluid is a gas or a liquid based on that difference. Thus, amended claims 1 and 15 are allowable over Collette.

Claims 6, 8, 20, 22 and 23 depend from either claim 1 or claim 15, both of which are believed to be allowable, and are therefore allowable on at least those grounds.

CLAIM REJECTIONS UNDER 35 USC § 103

Claims 1-13 and 15-27 stand rejected under 35 U.S.C. as being unpatentable over Last et al. (US6,547,004) in view of Riddel (US 3,479,875) or Neapolitikas et al. (US3,432,840).

Last teaches a device for collecting a sample from a low-yield well or perched aquifer that includes a pump and a controller responsive to water level sensors for filling a sample reservoir. The controller activates the pump to fill the reservoir when the water level in the well reaches a high level as indicated by the sensor. The controller deactivates the pump when the water level reaches a lower level as indicated by the sensors. (Abstract).

Riddel teaches a fluid level indicator including a thermistor and a heating element. The indicator correlates a change in the resistivity of the thermistor due to temperature with the level of fluid in a container (Col. 4, lines 5-11).

Neapolitikas also teaches a fluid level indicator including a thermistor and a heating element. Changes in the resistivity of the thermistor due to temperature cause a light to energize to indicate a fluid level.

With respect to independent claims 1, 9, 15 and 24, Last, even when combined with Riddel or Neapolitikas, does not teach or suggest a controller determining whether a fluid level sensor is surrounded by a liquid or a gas based on a differential in the measured parameter. To Applicant's reading, none of the references utilize a differential in the measured parameter. Thus, amended claims 1 and 15 are allowable over Collette.

With respect to claim 2, these references do not teach a controller calculating a temperature differential being indicative of whether the non-mechanical fluid level sensor is surrounded by a liquid or a gas.

With respect to claim 3, these references do not teach applying an electrical signal to the non-mechanical fluid level sensor to heat the surrounding fluid. The references teach a separate heater.

With respect to claim 4, these references do not teach a power source cyclically heating said non-mechanical fluid level sensor. Applicant finds no teaching of cyclical heating in any of the references.

Claims 5-8 add recitations that further define claim 1 in the context of fluid control in a wellbore. The prior art of record includes references from non-analogous application that one skilled in the art would not combine to arrive at the claimed inventions of claims 5-8. In any case, Claims 5-8 depend from claim 1, which is believed to be allowable, and therefore allowable on at least those grounds.

With respect to claim 10, these references do not teach a power source that is configured to cyclically heat the level sensor.

With respect to claim 11, these references do not teach a controller determining whether switch points have been reached by processing temperature measurements of level sensors.

With respect to claim 12, these references do not teach a controller that uses sensor measurements to determine the height of the water column by either extrapolation or interpolation.

With respect to claim 13, these references do not teach a controller utilizing a rate of change of height of a water column to determine the height of the water column.

Claim 17 has been cancelled and rewritten as claim 28.

With respect to claim 19, these references do not teach a power source that is configured to cyclically heat the level sensor.

Claims 16, 18, 20, 21, 22 and 23 add recitations that further define claim 15 in the context of fluid control in a wellbore. The prior art of record includes references

from non-analogous application that one skilled in the art would not combine to arrive at the claimed inventions of claims 5-8. In any case, Claims 16, 18, 20, 21, 22 and 23 depend from claim 15, which is believed to be allowable, and therefore allowable on at least those grounds.

With respect to claim 25, these references do not teach a power source that is configured to cyclically heat the level sensor.

With respect to claim 26, these references do not teach a controller determining whether switch points have been reached by processing temperature measurements of level sensors.

With respect to claim 27, these references do not teach a controller that uses sensor measurements to determine the height of the water column by either extrapolation or interpolation.

Claims 18 and 19

Claims 18 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Collette '491 in view of Erickson (US4,285,401) or Adamache et al (US4,988,389). Claims 18 and 19 depend from claim 15, which is believed to be in condition for allowance, and thus should be allowable on at least those grounds.

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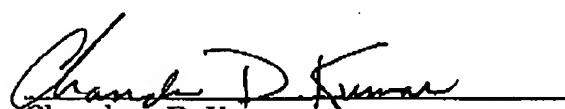
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CONCLUSION

Applicant believes that this Paper is responsive to the Examiner's stated election/restriction requirement. The commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. **13-0010 (COR-1082-US)**

Respectfully submitted,

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